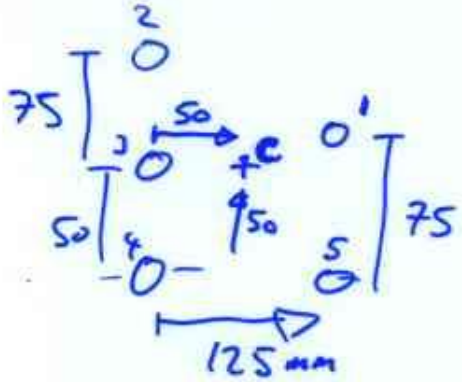
Area of a rivet 12mm ϕ $\Rightarrow$ $\pi 6^2 = 113\ mm^2$

$\frac{\Sigma A_i x_i}{\Sigma A_i}$ A_i same for every rivet $\Rightarrow$ $\frac{A_i \Sigma x_i}{\Sigma A_i} = \frac{113\ \Sigma x_i}{(5)(113)}$

$\frac{0+0+0+125+125}{5}$

$= 50\ mm$



$\frac{\Sigma A_i y_i}{\Sigma A_i} = \frac{\Sigma y_i}{5} = \frac{0+0+50+125+75}{5} = 50mm$

$P_1 = \sqrt{75^2 + 25^2} = 79.1$

$P_2 = \sqrt{75^2 + 50^2} = 90.1 \leftarrow F_2$

$P_3 = 50 = 50.0$

$P_4 = \sqrt{50^2 + 50^2} = 70.7$

$P_5 = \sqrt{50^2 + 75^2} = 90.1 \leftarrow F_5$

(*)

$\Sigma M_0 = P_1F_1 + P_2F_2 + P_3F_3 + P_4F_4 + P_5F_5$ ← sum of moments.

Force $\propto \delta$; we assume $\delta_i \propto P_i$ Because areas are are all the same.

$\frac{F_1}{P_1} = \frac{F_2}{P_2} = \frac{F_3}{P_3} = \frac{F_4}{P_4} = \frac{F_5}{P_5}$

can express F_1 F_2 F_3 F_4 in terms of F_5 + geometry

$F_1 = \frac{P_1 F_5}{P_5}$ $F_2 = P_2 \frac{F_5}{P_5}$ etc.

$F_5 = \frac{P_5 F_5}{P_5}$

Substitute into ΣM_0